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believe that it is the special business of the mind to change them. Instrumentalism is the philosophy of constructive radicalism at a time when the world is full of forces and instruments of transmutation. Intelligence has or ought to have a pivotal position in the world, and the enforcement of this position is the constant problem in all the multitude of real and changing problems with which we have to deal. We can not depend upon providence or evolution or the inertia of things. Philosophy will have different tasks at different times, but just now one great task for the *thinker*, for the American thinker, is to "bring to consciousness America's own needs and its own implicit principle of successful action." What can that principle be except the frank responsibility of constructive intelligence?

Instrumentalism, as well as the more comprehensive empirical naturalism, is, to be sure, "a recovery of philosophy," but this recovery has, I venture to believe, been carried farther than we perhaps realize. How quaint and far away, taken with its traditional interpretation, seems the famous sentence of Locke: "Since the mind in all its thoughts and reasonings hath no other immediate object but its own ideas, which it alone does or can contemplate, it is evident that our knowledge is only conversant about them." *Eppure muove.*

WENDELL T. BUSH.

COLUMBIA UNIVERSITY.

FRANCIS BACON AND THE MODERN SPIRIT

THE philosophy of Francis Bacon is at once a reaction, a reformation, and a prophecy. As a reaction it is set in contrast to much that we have come to call ancient and medieval. As a reformation and a prophecy, it is the embodiment and prevision of what we now term modern. It is with Bacon as the exponent and prophet of the modern spirit that I am specifically concerned. Whether he was a Machiavellian in character, an opportunist in politics, a dilettante in arts and letters or a "buccinator" in the sciences, are matters beyond my immediate interest. Other considerations, too, as to whether he was original, or whether his treatment of mathematics was defective, or whether his inductive method was adequate, or whether his account of "causes" was the continuation of alchemy, are likewise topics which must be passed over. Whether original or not, there is no other man of the times in whom the many-sided and varied interests of the age are so illustrated and reflected. If we can attach any meaning to the word modern and if we can anywhere point to a transition from medieval to modern, that meaning and that transition are exemplified in the writings of Francis Bacon. As the mouth-piece of his age he is the spokesman of modernity.

We are frequently using the word "modern," and that, too, usually in a euphemistic sense. Just what do we mean by the term? Every one is familiar with the stereotyped division of time into ancient, medieval, and modern. On the basis of this division the customary view is that the intellectual history of western Europe, in its first and ancient period, shows great spontaneity, originality, and creative power, that thought develops to a climax that is classical, and then, through a series of rather unfortunate accidents, it takes a slump. From the sixth to the middle of the fifteenth century thought is at a standstill. Then all at once the great enlightenment. Man suddenly, with his intelligence emancipated and with his imagination set free, awakens to the discovery of himself as a human being and of nature as an object of human interest. And ever thereafter times and men are modern.

Now Shakespeare, as we know, in writing historical plays has taken great liberty with events in their temporal sequence. For literary purposes or for esthetic effect, men have a dramatic birth long before their real birth or they have a dramatic death long after their real death. And certain historians, I dare say, have written history much as Shakespeare wrote dramas. That is to say, under the constraint of an esthetic preference for the dramatic and spectacular, historians have greatly overemphasized the importance of the renaissance and have tremendously undervalued the significance of the preceding centuries. As a matter of fact the "dark ages" were not quite so dark as they are usually pictured nor was the "enlightenment" quite so bright as we have been led to suppose.

From many quarters we are being told by contemporary historians that the middle ages are a "myth," and that the renaissance is a "fiction"; both are inventions of the historical imagination. Thus writes Professor Shotwell: "The trend of recent historical development leads one even to doubt the validity of the very conception of any definite medieval period."¹ We must, then, it seems, give up the notion of trying to define modern on the basis of a temporal distinction. And so from now on we shall speak, not of modern *times*, but of the modern *spirit*. So far as temporal distinctions are concerned, says Francis Bacon, "we are the ancients." He writes: "And to speak the truth antiquity, as we call it, is the young state of the world; for those times are ancient when the world is ancient; and not those we vulgarly account ancient by computing backwards; so that the present time is the real antiquity."² Or as elsewhere stated: "Truth is not to be sought in the good fortune of any particular conjuncture of time, which is uncertain, but in the light of

¹ Article, "The Middle Ages," *Ency. Brit.*, 11th ed.

² *Advancement of Learning*, p. 50. Bohn's Library ed.

nature and experience, which is eternal."⁸ And so I say we had best not speak of modern times, but of the modern spirit. Wherever that spirit has been active and operative, those times were modern times.

What, then, is the modern spirit? There are, it seems to me, four cognate ideas which go to make up the concept of modern. I do not present them either as final or as complete. I present them as tentative and partial. They are the ideas of progress, of control, of utility, and of responsibility. And these are just the ideas we find so conspicuously emphasized in the writings of Bacon.

I

And first as to the idea of progress. It is with the "advancement" of learning that Bacon is chiefly concerned. Intellectual history had come to a standstill. Philosophy was coming down in the form of "master and scholar," but not in the form of "inventor and improver." Bacon points to the mechanical arts which daily are showing advance and improvement, while the intellectual sciences are "like statues, celebrated and adorned, but never advanced."

I shall describe somewhat in detail the intellectual situation at the beginning and at the end of the middle ages, for only in this way can we understand the significance of Bacon's reaction. It has already been indicated that we must give up the evolutionary method of historical interpretation, the view that thought develops to a climax during the ancient period, then falls during the middle ages to rise again in modern times. History represents a series of reactions to concrete situations. On the one side, in the form of stimulus, we have the "classical heritage" and the theology of the Church Fathers. On the other side, as agents, we have the younger races of the north, different from the ancients in race, in character, and in training. In a situation like this, what is man's intellectual task? It is not to create nor to invent; it is to learn and to understand. Add to this the further consideration that the past came under the constraint of authority; the antique culture was acquired with a characteristic deference for antiquity, and Christianity was accepted under the notion that it was necessary for salvation. This deference of a younger race for the traditions of an older race was an inevitable part of the situation. It was the controlling factor in setting the intellectual task of the middle ages. Man's task was not to create or to alter, enough for him that he understand and admire. This felt intellectual humility in the presence of a superior past tended toward the subordination of free intellectual inquiry.

Let us shift our point of view to the end of the middle ages.

⁸ *Novum Organum*, Bk. I., Aphorism LVI.

After centuries of learning man has accomplished his task. He has learned his lesson. Intellectually he has arrived. He can now "lie back." Surely there has been progress and advance. But how about *further* progress? The situation is such that with the given subject-matter no further progress is possible. With the given material all has been done that can be done. Its subject-matter has been worked through with a thoroughness that has left nothing more to be accomplished. The given stock of premises has been squeezed dry. Unproductiveness has become congenital.

In his reaction to this situation Bacon does not condemn the past. His attitude is not one of fault-finding. His philosophy is not a renovation, but an innovation. When advance is no longer possible in a given direction the obvious thing to do is to change the direction. "Let there be," he says, "one method of cultivating the sciences, and another for discovering them." Cultivation is all right, but it is not discovery, and progress is to be sought in discovery. There is no need to refute the past. The need is to widen man's intellectual outlook, to extend knowledge beyond its already too narrow limits. It is with the extension of knowledge into new fields that Bacon is concerned. Progress does not consist in the inculcation of a doctrine nor in the perpetuation of a tradition. It may be well that doctrines be inculcated and that traditions be perpetuated, but that is not progress; it is cultivation, but not discovery. Advance involves a new point of departure, a new interest, a new subject-matter and a new method. The important thing is that Bacon gives expression to the idea of progress, and therein consists the birth of the modern spirit.

It is important that one believe in the possibility of progress, for the absence of such a belief commits one either to an arrogant dogmatism, a complacent satisfaction with things as they are, or to a hopeless skepticism, the dangerous doubt that things can be improved. On this subject Bacon has written as follows: "But by far the greatest obstacle to the advancement of the sciences, and the undertaking of any new attempt or departure, is to be found in men's despair and in the idea of impossibility."⁴

One may view the world in such a way that progress is by definition ruled out. Such a view, for example, would be that of Plato. A Platonic "Idea" can not be improved. It is once for all what it is, ready-made, fixed and unalterable. Now Plato, as every one knows, exercised directly or indirectly through Neo-Platonic sources a profound influence on the medieval mind. This conception of fixity, of a static world, was riveted on men's minds. From such a point of view it is easy to see that progress is in the very nature of the case ruled out. Novelty and change are out of the question. But not so

⁴ *Novum Organum*, Bk. I., Aphorism XCII.

with Bacon. He is possessed with a faith in the possibility of progress. And this possibility is grounded on the conception of change. To accept the past with a dogmatic belief in its fixity and finality is to preclude the possibility of progress.

II

The fact of change is the condition of progress, but is not itself progress. Movement affords the opportunity for advance, but is not itself advance. Nature gives us change, man converts change into progress by giving it direction. Only where change is accumulative, only where evolution is creative, only where the growing edge of reality is endowed with a marginal efficiency can we in any true sense speak of progress. And this leads us to the second idea of modern, the idea of control.

The purpose of the *Novum Organum* is to describe a method by means of which man can control nature. The logical methods of the middle ages were well designed to meet the intellectual task set by the medieval mind, but they were totally inadequate as methods for the interpretation of nature. Since nature is a new subject of inquiry there is need for a new method of interpretation. Such a knowledge of nature as there was had been based on sense perception. The sun was supposed to move around the earth because that was the immediate fact of sense experience. And it is equally true that deduction is just as inadequate. Aristotle had said that the heavenly bodies move in circles because circular movement was the most perfect movement. Such esthetic considerations, Bacon urges, are hopeless when it comes to a true interpretation of the facts and laws of nature. Pure logical deductions can never lead one to a knowledge of matters of existence. And so if one would arrive at a knowledge concerning matters of fact or concerning the forms and connections of nature, one must abandon sense perception and deduction as methods. One must discover a new method, he must resort to an indirect means of attack, he must employ instruments as aids to interpretation. The understanding, writes Bacon, "when left to itself, . . . undirected and unassisted, is unequal to and unfit for the task of vanishing the obscurity of things."⁵ Or again, "Effects are produced by the means of instruments and helps, which the understanding requires no less than the hand."⁶

As every one knows, induction was Bacon's instrument of interpretation. I can not here discuss the question as to whether Bacon was the first to use induction, or whether his account of it is adequate, or whether induction without deduction is complete. I can only point

⁵ *Novum Organum*, Bk. I., Aphorism XXI.

⁶ *Ibid.*, Bk. I., Aphorism II.

out the fact that Bacon signalizes the truth that control lies in method. And method was for Bacon as it was for Descartes essentially a matter of the mind. "Knowledge is power," or what is the same thing, control is primarily an affair of the intelligence. "Before we can enter the remote and hidden parts of nature, it is requisite that a better and more perfect application of the human mind should be introduced." Intelligence is not foreign to nature; mind mingles with matter, directing and controlling it. Mind is method, or what is the same thing, thought is the way forward. On the subject of mind as an instrument of control Professor Woodbridge has written as follows: "The world, although it is moved by its own forces and according to its own laws, is yet controllable just in proportion as it is understood. By itself, it is solid and unyielding; penetrated by the mind, it is fluid and convertible. By itself, it is man's master; through his mind, it is his servant."⁷

III

To get forward, then, through the instrumentality of mind is so far the meaning of modern. But your conservative type of mind will ask, for what purpose? And the only answer which I am capable of giving is, because it is worth while. We are led to places where we have not yet been because they are the kind of places *worth* being led to. Only where change is useful can we say that there has been progress. In short, to get forward is worth while. To progress and control, then, we must add the third factor of modernity, namely, utility.

And again it is Francis Bacon who is our guide. His writings are permeated with the idea of practical utility. In enumerating the errors which have held men back and which have brought learning to a standstill, he says: "But the greatest error of all is mistaking the ultimate end of knowledge; for some men covet knowledge out of a natural curiosity and inquisitive temper; some to entertain the mind with variety and delight; some for ornament and reputation; some for victory and contention; many for lucre and a livelihood; and but few for employing the Divine gift of reason to the uses and benefit of mankind."⁸ Elsewhere he says: "The real and legitimate goal of the sciences is the endowment of human life with new inventions and riches."⁹ Thus progress operates in the interest of human welfare; it is to alleviate human suffering, to better the conditions of human beings; it is, in plain English, to make the world a more de-

⁷ "The Discovery of the Mind," *Columbia University Quarterly*, December, 1912.

⁸ *Advancement of Learning*, p. 53. Bohn's Library ed.

⁹ *Novum Organum*, Bk. I., Aphorism LXXXI.

cent and respectable place to live in. It is not, in the language of Macaulay, so much to make men perfect, as it is to make imperfect men comfortable.

In this respect Bacon's philosophy is set in sharp contrast to both ancient and modern philosophy. This point is well marked by Lord Macaulay in his essay on Bacon. In support of his view he quotes a passage from Seneca in which it is asserted that philosophy is not concerned with inventions and discoveries. "We shall next be told," says Seneca, "that the first shoemaker was a philosopher." And then Macaulay adds: "For our own part, if we are forced to make our choice between the first shoemaker, and the author of the three books on Anger, we pronounce for the shoemaker. It may be worse to be angry than to be wet. But shoes have kept millions from being wet; and we doubt whether Seneca ever kept any one from being angry." Bacon himself brings against Greek philosophy the following serious charge: "Now from the systems of the Greeks . . . during so long a period, scarcely one single experiment can be culled that has a tendency to elevate or assist mankind."¹⁰ I am sure that to many minds this idea of practical utility will seem gross and commercial; it sounds opportunistic and utilitarian. "Do your duty," says Immanuel Kant, "though the heavens fall." As if, as has often been remarked, it were not one of man's duties to keep the heavens from falling. A professor of philosophy once, when asked what the use of his subject was, replied: "In a materialistic and utilitarian age like this, I thank God that I am teaching a subject that hasn't any use." It is not my purpose to say whether philosophy has fallen into "innocuous desuetude." I can only say that in so far as it disdains to be useful it can not be said to be modern.

IV

Thought is the way forward; and to get forward is worth while. From this it follows that progress is a human achievement. The fourth factor in the meaning of modern is responsibility. Nature through change affords the conditions of progress, man through his mind converts change into progress by giving it direction and by subjecting it to control, and therein consists his responsibility. We are too prone to shift the burden of responsibility. On this subject Bacon has written as follows: Men think "that in the revolutions of ages and of the world there are certain floods and ebbs of the sciences, and that they grow and flourish at one time, and wither and fall off at another, that when they have attained a certain degree and condition they can proceed no further."¹¹ The idea here is that

¹⁰ *Novum Organum*, Bk. I., Aphorism LXXXIII.

¹¹ *Novum Organum*, Bk. I., Aphorism XCI.

progress is beyond human control. If we get the idea that things are developing in accordance with great natural or spiritual laws, that progress is somehow bound up in the nature of things, that development is an inherent necessity, and that therefore we, whenever we please, can "take a moral holiday," then, I dare say, we have mistaken the function of thought in human experience. To shift the burden of progress on to natural law, or on to sociological gravitation, or to the evolution of some Hegelian world-spirit, and thereby to exempt ourselves from accountability, is to revert from progress to change. Progress is neither a happy cosmic accident nor a divine gift, it is a human achievement. If things are to become better, if society is to improve, if civilization is to advance, it will be because human beings, conscious of the power of intelligence to participate in the production of progress, feel a moral constraint to use their minds in the enlightened pursuit of the good. It is here that "intelligence and morals" unite. There is a "moral responsibility to be intelligent" as well as an "intellectual obligation to be moral." And in that consists, not only the spirit, but also the spirituality of the idea of modern.

To use the mind for the purpose of getting to places hitherto unexplored, places in themselves worth getting to, and the consequent moral constraint so to do—this, or something like this, is Bacon's theoretical programme of reform. And in terms of ideals like these we would characterize the spirit of modernity.

M. T. MCCLURE.

TULANE UNIVERSITY.

REVIEWS AND ABSTRACTS OF LITERATURE

The Psychology of the Great War. GUSTAVE LEBON. Translated by E. ANDREWS. New York: The Macmillan Company. 1916. Pp. 480.

The title of this book does not convey a correct idea of its scope. It might better have been called "Reflections on the Great War." This would have been at the same time a more and a less pretentious title. For while the book does contain a remarkably varied and interesting assortment of ideas suggested to a thoughtful observer by the events of the day, it is not a scientific treatise. It would probably be impossible for any living man to write a scientific psychology of the war, partly because psychology is not at present provided with the necessary principles and methods, and partly because sufficient data are not yet available. M. LeBon does not pretend to confine himself to psychological considerations. He summarizes the economic and political evolution of modern Germany, discusses the economic